UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,108	06/07/2001	Winthrop D. Childers	10008114-1	2356

7590 12/14/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/878,108	CHILDERS, WINTHROP D.	
	Examiner	Art Unit	
	MY-CHAU T TRAN	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,28,31-34 and 36-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10,28,31-34 and 36-43* is/are rejected.

7)☒ Claim(s) *37 and 39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *6/7/2001 & 4/17/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/20/2004 has been entered.

Status of Claims

2. Applicant's amendment filed 7/30/2004 is acknowledged and entered. Claims 2, and 27 have been canceled. Claims 1, 28, 36, 37, 39-40, 41 and 43 have been amended.

3. Claims 29-30, and 35 were canceled; Claims 1-7, 10, 27-28, and 31 were amended; and Claims 36-43 were added by the amendment filed on 4/16/2004.

4. Claims 11-26 were canceled, and Claims 1, 27-28, 31, and 34-35 were amended by the amendment filed on 9/12/2003.

5. Claims 1-2, 4-6, and 10 were amended, and Claims 27-35 were added by the amendment filed on 4/17/2003.

6. Claims 1, 3-10, 28, 31-34, and 36-43 are pending.

7. Claims 1, 3-10, 28, 31-34, and 36-43 are treated on the merit in this Office Action.

Withdrawn Rejections

8. The rejections of claims 1-10, 27-28, 31-34, and 36-40 under 35 USC 112, first paragraph (new matter rejection) have been withdrawn in light of applicant's arguments, filed 7/30/2004, and amendments of claims 1, and 36.

9. The rejections of claims 1-10, 27-28, 31-34, and 36-43 under 35 USC 112, second paragraph, as being as being indefinite have been withdrawn in light of applicant's arguments, filed 7/30/2004, and amendments of claims 1 and 36.

10. The rejection of claims 1-10 and 27-30 under 35 USC 102(b) as being anticipated by Stylli et al. (US Patent 5,985,214) has been withdrawn in light of applicant's amendments of claims 1, 28, 36, 37, 39-40, 41 and 43 and cancellation of claims 2, and 27.

11. The rejection of claims 1, and 31-34 under 35 USC 102(b) as being anticipated by Stylli et al. (US Patent 5,985,214) has been withdrawn in light of applicant's amendments of claims 1, 28, 36, 37, 39-40, 41 and 43 and cancellation of claims 2, and 27.

12. The rejection of claims 36-44 under 35 USC 102(b) as being anticipated by Stylli et al. (US Patent 5,985,214) has been withdrawn in light of applicant's amendments of claims 1, 28, 36, 37, 39-40, 41 and 43 and cancellation of claims 2, and 27.

Claim Objections

13. Claim 37, and 39 are objected to as an improper dependent claim since it depends on cancel claim 2 that result in a broken pendency chain. However in order to further prosecution, Claim 37 and 39 are interpreted to depend on claim 36. Appropriate correction is required.

A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim, which depends from a dependent claim, should not be separated by any claim, which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

14. Claim 37 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim 36. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claimed limitation of claim 37, i.e. "*providing at least one memory storage device in the cartridge that is capable of capturing and maintaining information pertaining to at least one of a function of the cartridge and the at least one potential pharmaceutically active agent contained within the at least one chamber of the cartridge*", is similar to the newly added and amended limitation of claim 36, i.e. "*capturing and maintaining information via a memory storage device of the consumable cartridge pertaining to a function of the consumable cartridge and the potential pharmaceutically active agent*" and "*the at least one*

consumable cartridge including at least one chamber containing at least one potential pharmaceutical active agent".

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 36-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The amended limitation of "*removably receiving into a test apparatus at least one liquid ejection device comprising at least one consumable cartridge with the at least one consumable cartridge*" of claim 36 is vague and indefinite because it is unclear whether the liquid injection device comprises 2 consumable cartridges or the consumable cartridge contain a consumable cartridge.

b. Claim 36 recites the limitation "the cartridge" in lines 15-17. There is insufficient antecedent basis for this limitation in the claim 36. It is suggested that applicant amend 'the cartridge' to "the consumable cartridge".

c. The claimed method step of "*removably associating the cartridge relative to the printhead*" of Claim 39 is vague and indefinite because it is unclear as to its correlation with the method step of "*removably receiving into a test apparatus at least one liquid ejection device comprising at least one consumable cartridge with the at least one consumable cartridge including at least one chamber containing at least one potential*

pharmaceutically active agent, a memory storage device, and an electronically actuated drop-on-demand printhead in fluid communication with the chamber" of claim 36.

d. Claim 41 recites the limitation "the effect" in line 22. There is insufficient antecedent basis for this limitation in the claim 41. It is suggested that applicant amend 'the effect' to "the pharmacological effect".

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

19. Claims 1, 3-10, 28, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stylli et al. (US Patent 5,985,214) and Bullock et al. (US Patent 5,812,156).

The instants claim 1 recite an automated method for analyzing substances containing cellular material. The method comprises the steps of a) removably receiving at least one

consumable cartridge containing at least one potential pharmaceutically active agent into a test apparatus; b) activating the test apparatus to dispense a first defined volume of the potential pharmaceutically active agent from the drop-on-demand printhead of the liquid ejection device into contact with the defined volume of a substance containing a target cellular material; c) capturing and maintaining information via a memory storage device of the consumable cartridge pertaining to a function of the consumable cartridge and the potential pharmaceutically active agent; d) detecting in the at least one defined volume of the substance a pharmacological effect on the target cellular material triggered by introduction of the first defined volume of the at least one potential pharmaceutically active agent; e) generating information indicative of the pharmacological effect of the at least one potential pharmaceutically active agent on the target cellular material; and f) analyzing the generated information to generate a correlation factor regarding the pharmacological effect of the at least one potential pharmaceutically active agent on the target cellular material.

The test apparatus comprises a liquid ejection device that includes the consumable cartridge and an electronically actuated drop-on-demand printhead wherein the printhead is acting in fluid communication and electronic communication with the consumable cartridge. The target cellular material is whole cells or recognized cellular components from intact cells.

Stylli et al. disclose systems and methods that utilize automated and integratable workstations for identifying chemicals having useful activity such as biological activities, and collecting informations resulting from such a process (see e.g. Abstract; col. 2, lines 35-41; col. 6, lines 1-24; col. 32, line 57 to col. 33, lines 55; col. 37, line 1 to col. 38, line 67). The assay discloses by Stylli et al. is for identifying chemicals (refers to the presently claimed potential pharmaceutical active agent) that have biological activity (see e.g. col. 37, line 1 to col. 38, line 67; col. 39, lines 16-25; col. 40, lines 6-18; col. 42, line 36 to col. 43, line 10; col. 43, lines 6-9). The assay includes cell based assay using whole cell (refers to the presently claimed target cellular material is whole cell) or biological assay using target free of cells (refers to the presently claimed target cellular material is recognized cellular components from intact cells). The method comprise of dispensing the chemical into the addressable sample wells, which contains a predetermined volume of the sample (refers to the presently claimed target cellular material cellular material) (see e.g. col. 6, lines 25-40; col. 8, lines 14-18). The method includes

storing, managing, and retrieving data collected from the assay process, i.e. the managing a continuous control based on process variables as well as real-time events (refers to the presently claimed method step of generating information indicative of an effect of the at least one potentially active agent and analyzing the generated information to generate a correlation factor) (see e.g. col. 28, line 65 to col. 29, line 12; col. 29, lines 14-26; col. 30, lines 59-62; col. 31, lines 4-16, and 43-45). The automated method can comprise of multiple dispensers for dispensing different reagents in a complex screening process (see e.g. col. 33, lines 32-48), and generating specific liquid dispensation patterns and volumes to the high-density plate (see e.g. col. 60, lines 3-8) (referring to claims 10, and 31-34). The method also includes the step of activating a second reagent dispenser (refers to the presently claimed second liquid ejection device) (see e.g. col. 32, line 59 to col. 33, line 11). The dispenser is in communication with the dispensing nozzle (printhead) (see e.g. col. 16, lines 30-32, and 38-51). The system of Stylli et al. includes a storage and retrieval module (see e.g. col. 11, line 59 to col. 12, line 3; fig. 3, ref. #160; col. 19, lines 45-54; fig. 5, ref. #306) that is associated with a sample distribution module that can dispense large numbers of solutions (see e.g. col. 12, lines 5-11). The sample distribution module comprises a liquid handler (refers to the presently claimed liquid injection device) (see e.g. col. 13, lines 6-15), which comprises a plurality of nanoliters dispensers (see e.g. col. 15, lines 40-44). The nanoliters dispenser comprises fluid reservoir that are region of a dispenser tip that hold fluid aspirated the nanoliters dispenser (see e.g. col. 16, lines 10-17).

The liquid dispensing system of Stylli et al. differs from the presently claimed invention by failing to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of

the consumable cartridge and is in fluid communication with the printhead. The method of Stylli et al. differs from the presently claimed invention by failing to include the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge.

Bullock et al. disclose a printing system (see e.g. Abstract; col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The printing system replaceable cartridge and an ink jet head (i.e. a printhead) (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The replaceable cartridge comprises a housing (refers to the presently claimed chamber) (see e.g. col. 2, lines 20-21) and a cartridge memory (refers to the presently claimed memory storage device) (see e.g. col. 2, lines 21-23). The cartridge memory captures and maintains information pertaining to the function of the replaceable cartridge and the media parameters (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The ink jet head and the replaceable cartridge are in fluid communication and electronic communication (see e.g. col. 2, lines 26-37; col. 3, line 64 to col. 4, line 13; col. 5, lines 6-16).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge as taught by Bullock et al. in the apparatus and

method of Stylli et al. One of ordinary skill in the art would have been motivated to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge in the apparatus and method of Stylli et al. for the advantage of providing an improved printhead system that incorporates real time control functions that are responsive to parameters read from plural consumable parts (Bullock: col. 2, lines 15-18). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Stylli et al. and Bullock et al. because both Stylli et al. and Bullock et al. discloses a printhead system.

20. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stylli et al. (US Patent 5,985,214) and Bullock et al. (US Patent 5,812,156).

The instants claim 36 recite an automated method for analyzing substances containing cellular material. The method comprises the steps of a) removably receiving into a test apparatus a liquid ejection device; b) activating the test apparatus to dispense via a printhead a first defined volume containing the potential pharmaceutically active agent from the liquid ejection device into contact with the defined volume of a substance containing a target cellular material; c) capturing and maintaining via a memory storage device of the cartridge information pertaining to a function of the cartridge and the potential pharmaceutically active agent contained within the cartridge; d) detecting in the defined volume a pharmacological effect on the target cellular material triggered by introduction of the first defined volume of the potential pharmaceutically active agent; e) generating information indicative of the pharmacological effect of the at least one potential pharmaceutically active agent on the target cellular material; and f) analyzing the generated information to generate a correlation factor regarding the pharmacological effect of the at least one potential pharmaceutically active agent on the target cellular material.

The liquid ejection device comprises a consumable cartridge wherein the consumable cartridge includes a chamber containing a potential pharmaceutically active agent, a memory

storage device, and an electronically actuated drop-on-demand printhead in fluid communication with the chamber. The target cellular material is whole cells or recognized cellular components from intact cells.

Stylli et al. disclose systems and methods that utilize automated and integratable workstations for identifying chemicals having useful activity such as biological activities, and collecting informations resulting from such a process (see e.g. Abstract; col. 2, lines 35-41; col. 6, lines 1-24; col. 32, line 57 to col. 33, lines 55; col. 37, line 1 to col. 38, line 67). The assay discloses by Stylli et al. is for identifying chemicals (refers to the presently claimed potential pharmaceutical active agent) that have biological activity (see e.g. col. 37, line 1 to col. 38, line 67; col. 39, lines 16-25; col. 40, lines 6-18; col. 42, line 36 to col. 43, line 10; col. 43, lines 6-9). The assay includes cell based assay using whole cell (refers to the presently claimed target cellular material is whole cell) or biological assay using target free of cells (refers to the presently claimed target cellular material is recognized cellular components from intact cells). The method comprise of dispensing the chemical into the addressable sample wells, which contains a predetermined volume of the sample (refers to the presently claimed target cellular material cellular material) (see e.g. col. 6, lines 25-40; col. 8, lines 14-18). The method includes storing, managing, and retrieving data collected from the assay process, i.e. the managing a continuous control based on process variables as well as real-time events (refers to the presently claimed method step of generating information indicative of an effect of the at least one potentially active agent and analyzing the generated information to generate a correlation factor) (see e.g. col. 28, line 65 to col. 29, line 12; col. 29, lines 14-26; col. 30, lines 59-62; col. 31, lines 4-16, and 43-45). The automated method can comprise of multiple dispensers for dispensing different reagents in a complex screening process (see e.g. col. 33, lines 32-48), and generating

specific liquid dispensation patterns and volumes to the high-density plate (see e.g. col. 60, lines 3-8) (referring to claims 10, and 31-34). The method also includes the step of activating a second reagent dispenser (refers to the presently claimed second liquid ejection device) (see e.g. col. 32, line 59 to col. 33, line 11). The dispenser is in communication with the dispensing nozzle (printhead) (see e.g. col. 16, lines 30-32, and 38-51). The system of Stylli et al. includes a storage and retrieval module (see e.g. col. 11, line 59 to col. 12, line 3; fig. 3, ref. #160; col. 19, lines 45-54; fig. 5, ref. #306) that is associated with a sample distribution module that can dispense large numbers of solutions (see e.g. col. 12, lines 5-11). The sample distribution module comprises a liquid handler (refers to the presently claimed liquid injection device) (see e.g. col. 13, lines 6-15), which comprises a plurality of nanoliters dispensers (see e.g. col. 15, lines 40-44). The nanoliters dispenser comprises fluid reservoir that are region of a dispenser tip that hold fluid aspirated the nanoliters dispenser (see e.g. col. 16, lines 10-17).

The liquid dispensing system of Stylli et al. differs from the presently claimed invention by failing to include a consumable cartridge that is in fluid communication with the printhead and the includes consumable cartridge a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge. The method of Stylli et al. differs from the presently claimed invention by failing to include the method step of removably receiving a consumable cartridge into the apparatus and the method step of capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge.

Bullock et al. disclose a printing system (see e.g. Abstract; col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The printing system replaceable cartridge and an ink jet head (i.e. a

printhead) (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The replaceable cartridge comprises a housing (refers to the presently claimed chamber) (see e.g. col. 2, lines 20-21) and a cartridge memory (refers to the presently claimed memory storage device) (see e.g. col. 2, lines 21-23). The cartridge memory captures and maintains information pertaining to the function of the replaceable cartridge and the media parameters (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The ink jet head and the replaceable cartridge are in fluid communication and electronic communication (see e.g. col. 2, lines 26-37; col. 3, line 64 to col. 4, line 13; col. 5, lines 6-16).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge as taught by Bullock et al. in the apparatus and method of Stylli et al. One of ordinary skill in the art would have been motivated to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge in the apparatus and method of Stylli et al. for the advantage of providing an improved printhead

system that incorporates real time control functions that are responsive to parameters read from plural consumable parts (Bullock: col. 2, lines 15-18). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Stylli et al. and Bullock et al. because both Stylli et al. and Bullock et al. discloses a printhead system.

21. (US Patent 5,985,214) and Bullock et al. (US Patent 5,812,156).

The instants claim 41 recite an automated method for analyzing substances containing cellular material. The method comprises the steps of a) removably receiving the replaceable cartridge containing the potential pharmaceutically active agent into a test apparatus; b) activating the test apparatus to dispense a first defined volume containing the potential pharmaceutically active agent from the drop-on-demand printhead of the liquid ejection device into contact with the defined volume of a substance containing a target cellular material; c) detecting in the defined volume a pharmacological effect on the target cellular material triggered by introduction of the first defined volume of the potential pharmaceutically active agent; d) generating a first information indicative of the pharmacological effect of the potential pharmaceutically active agent on the target cellular material; e) dispensing interactively, based upon the generated information, a second defined volume of the potential pharmaceutically active agent from the liquid ejection device into contact with the defined volume of a substance containing the target cellular material; and f) generating a second information indicative of the effect of the potential pharmaceutically active agent on the target cellular material.

The test apparatus comprises a liquid ejection device that includes a replaceable cartridge and an electronically actuated drop-on-demand printhead wherein the printhead is acting in fluid communication with the replaceable cartridge. The target cellular material is whole cells or recognized cellular components from intact cells.

Stylli et al. disclose systems and methods that utilize automated and integratable workstations for identifying chemicals having useful activity such as biological activities, and collecting informations resulting from such a process (see e.g. Abstract; col. 2, lines 35-41; col. 6, lines 1-24; col. 32, line 57 to col. 33, lines 55; col. 37, line 1 to col. 38, line 67). The assay discloses by Stylli et al. is for identifying chemicals (refers to the presently claimed potential pharmaceutical active agent) that have biological activity (see e.g. col. 37, line 1 to col. 38, line 67; col. 39, lines 16-25; col. 40, lines 6-18; col. 42, line 36 to col. 43, line 10; col. 43, lines 6-9).

The assay includes cell based assay using whole cell (refers to the presently claimed target cellular material is whole cell) or biological assay using target free of cells (refers to the presently claimed target cellular material is recognized cellular components from intact cells). The method comprise of dispensing the chemical into the addressable sample wells, which contains a predetermined volume of the sample (refers to the presently claimed target cellular material cellular material) (see e.g. col. 6, lines 25-40; col. 8, lines 14-18). The method includes storing, managing, and retrieving data collected from the assay process, i.e. the managing a continuous control based on process variables as well as real-time events (refers to the presently claimed method step of generating information indicative of an effect of the at least one potentially active agent and analyzing the generated information to generate a correlation factor) (see e.g. col. 28, line 65 to col. 29, line 12; col. 29, lines 14-26; col. 30, lines 59-62; col. 31, lines 4-16, and 43-45). The automated method can comprise of multiple dispensers for dispensing different reagents in a complex screening process (see e.g. col. 33, lines 32-48), and generating specific liquid dispensation patterns and volumes to the high-density plate (see e.g. col. 60, lines 3-8) (referring to claims 10, and 31-34). The method also includes the step of activating a second reagent dispenser (refers to the presently claimed second liquid ejection device) (see e.g. col. 32, line 59 to col. 33, line 11). The dispenser is in communication with the dispensing nozzle (printhead) (see e.g. col. 16, lines 30-32, and 38-51). The system of Stylli et al. includes a storage and retrieval module (see e.g. col. 11, line 59 to col. 12, line 3; fig. 3, ref. #160; col. 19, lines 45-54; fig. 5, ref. #306) that is associated with a sample distribution module that can dispense large numbers of solutions (see e.g. col. 12, lines 5-11). The sample distribution module comprises a liquid handler (refers to the presently claimed liquid injection device) (see

e.g. col. 13, lines 6-15), which comprises a plurality of nanoliters dispensers (see e.g. col. 15, lines 40-44). The nanoliters dispenser comprises fluid reservoir that are region of a dispenser tip that hold fluid aspirated the nanoliters dispenser (see e.g. col. 16, lines 10-17).

The liquid dispensing system of Stylli et al. differs from the presently claimed invention by failing to include a consumable cartridge that is in fluid communication with the printhead and the includes consumable cartridge a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge. The method of Stylli et al. differs from the presently claimed invention by failing to include the method step of removably receiving a consumable cartridge into the apparatus and the method step of capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge.

Bullock et al. disclose a printing system (see e.g. Abstract; col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The printing system replaceable cartridge and an ink jet head (i.e. a printhead) (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The replaceable cartridge comprises a housing (refers to the presently claimed chamber) (see e.g. col. 2, lines 20-21) and a cartridge memory (refers to the presently claimed memory storage device) (see e.g. col. 2, lines 21-23). The cartridge memory captures and maintains information pertaining to the function of the replaceable cartridge and the media parameters (see e.g. col. 2, lines 20-37; col. 3, line 64 to col. 4, line 13). The ink jet head and the replaceable cartridge are in fluid communication and electronic communication (see e.g. col. 2, lines 26-37; col. 3, line 64 to col. 4, line 13; col. 5, lines 6-16).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge as taught by Bullock et al. in the apparatus and method of Stylli et al. One of ordinary skill in the art would have been motivated to include a consumable cartridge wherein the consumable cartridge includes a memory storage device for capturing and maintaining information pertaining to the function of the consumable cartridge and is in fluid communication with the printhead; and the method steps of removably receiving a consumable cartridge into the apparatus and capturing and maintaining information pertaining to the function of the consumable cartridge via memory storage device of the consumable cartridge in the apparatus and method of Stylli et al. for the advantage of providing an improved printhead system that incorporates real time control functions that are responsive to parameters read from plural consumable parts (Bullock: col. 2, lines 15-18). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Stylli et al. and Bullock et al. because both Stylli et al. and Bullock et al. discloses a printhead system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MY-CHAU T TRAN whose telephone number is 571-272-0810.

The examiner can normally be reached on Mon.: 8:00-2:30; Tues.-Thurs.: 7:30-5:00; Fri.: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDREW WANG can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mct
December 10, 2004

PADMASHRI PONNALURI
PRIMARY EXAMINER